

Geometric and Physical Optics Review

AP Physics

1. Geometric Optics:

a. Reflection and Refraction:

- i. Snell's Law.
- ii. Total internal reflection, and under what conditions it occurs.
- iii. Equations.

b. Mirrors:

- i. Types:
 1. Plane.
 2. Convex.
 3. Concave.
- ii. Ray tracing to find image: real or virtual, upright or inverted, magnified or reduced.
- iii. Equations.

c. Lenses:

- i. Types:
 1. Converging.
 2. Diverging.
- ii. Ray tracing to find image: real or virtual, upright or inverted, magnified or reduced.
- iii. Changing focal length by changing properties of lens.
- iv. Equations.

2. Physical Optics:

a. Diffraction: How waves spread depending on width of slit and wavelength.

b. Interference:

- i. Constructive: Integer wavelengths.
- ii. Destructive: Half-integer wavelengths.
- iii. Single-Slit Interference:
 1. Pattern on screen.
 2. Equations.
- iv. Double-Slit Interference:
 1. Young's experiment.
 2. Pattern on screen.
 3. Equations.
- v. Multiple-Slit Interference (Diffraction Grating):
 1. Pattern on screen.
 2. Equations.